

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow. Claims 39-43 and 46-58 have been rejected, and the Examiner has objected to Claims 44-45. Claims 39, 41-42, 44-45, 52, 55, and 58 have been amended for clarity, and Claims 40 and 53-54 have been cancelled. Claims 127-139 have been added. Accordingly, Claims 39, 41-52, 55-58, and 127-139 are pending in the present Application.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, are presented, with an appropriate defined status identifier.

No new matter has been added.

Allowable Subject Matter and Comment on Statement of Reasons for Allowance

In Section 10 of the Office Action, the Examiner indicated that Claims 44 and 45 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner stated:

Claim 44 would be allowable because the prior art does not disclose or suggest each first transverse cross-section not to extend beyond the planar surfaces of the frame. Claim 45 would be allowable because the prior art does not disclose or suggest each second transverse cross-section not to extend beyond the planar surfaces of the frame.

Claim 44 has been amended to include all limitations of Claims 39, 42, and 43. Claim 45 has been amended to include all limitations of Claim 39. Accordingly, it is submitted that Claims 44 and 45 are allowable.

While the Applicants agree that Claims 44 and 45 recite a combination of subject matter that is patentable over the cited references, the Applicants do not necessarily agree with or acquiesce in the statements of reasons for allowance given by the Examiner.

Moreover, the Applicants note that the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons than those given by the Examiner. The Applicants expressly reserve the right to set forth additional and/or alternative reasons for patentability and/or allowance with the present Application or in any other future proceeding.

Double Patenting

In Section 9 of the Office Action, the Examiner indicated that Claims 39, 42-45, and 53-55 are rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-14 of U.S. Patent No. 6,274,274 ("the '274 patent").

The present Application and the '274 patent are commonly owned.

The Applicants request that the double patenting rejection of Claims 39, 42-45, and 53-55 over Claims 1-14 of the '274 patent be held in abeyance until allowable independent claims are indicated by the Examiner in the present Application (since a timely filed terminal disclaimer would overcome the rejection such that further consideration of the claims on that rejection should not be necessary). 37 C.F.R. § 1.111(b).

Specification and Claim Rejections under 35 U.S.C. § 112

In section 2 of the Office Action, the Examiner stated:

The continuation of application filed on 7/2/01 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no continuation of application shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The recitation "applying a torsional stress to the grid element" in claim 40 and "applying a torsional stress to the grid wire element" in claim 41 are not supported in the originally filed application.

Applicant is required to cancel the new matter in the reply to this Office Action.

In Section 4 of the Office Action, Claims 40-41 and 46-52 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the

specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner stated:

The limitations "applying a torsional stress to the grid element" in claim 40 and "applying a torsional stress to the grid wire element" in claim 41 are not disclosed or discussed in the instant specification. Instead, the specification only discloses the use of three methods, including stamping process, continuous casting and strip expansion process, to fabricate the battery grids. Claims 40 and 41 have been amended to delete the terms "applying a torsional stress to the grid element" (Claim 40) and "applying a torsional stress to the grid wire element" (Claim 41).

Claim 40 has been cancelled. Claims 41 and 46-52 depend from Claim 39.

Claim 41 (as amended) recites, among other elements "applying a torsional stress to the wire at the position intermediate the opposed ends of the wire thereby rotating at least a portion of the wire."

The Applicants submit that the limitation "applying a torsional stress to the wire" is not new matter. The Applicants also submit that the specification includes a description that would have enabled one of ordinary skill in the art to make and use the invention as recited in Claim 41.

The specification of the present application recites at page 29, lines 16-21:

Alternatively, a stamping die may be used that rotates the intermediate portion of the grid wire elements to about 20 to 70 degrees in relation to the cross-section of the opposed ends of the grid wire where the grid wire and node meet as depicted in Figure 3.

This description is also included in the specification of U.S. Patent No. 6,274,274 (formerly U.S. Patent Application No. 09/351,418 to which the present application claims priority) at column 9, lines 29-33.

One of ordinary skill in the art would appreciate that a "stamping die" that is used to "rotate the intermediate portion of the grid wire elements" necessarily applies a torsional stress to such grid wire elements.

Accordingly, the Applicants submit that the rejection of Claims 41 and 46-52 under 35 U.S.C. § 112, first paragraph, is improper and should be withdrawn. The Applicants also submit that the objection under 35 U.S.C. § 132 is also improper and should be withdrawn.

Claim Rejections – 35 U.S.C. § 103(a) – Wirtz et al., Misra et al., and Rao et al.

In Section 6 of the Office Action, the Examiner rejected Claims 39 and 53-58 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,611,128 ("Wirtz et al.") in view of U.S. Patent No. 5,851,695 ("Misra et al.") as evidenced by U.S. Patent No. 5,985,625 ("Rao et al.").

Claim 39 is in independent form. Dependent Claims 53-58 depend from independent Claim 39.

Claim 39 (as amended) relates to a "method of making a battery" and recites a combination including, among other elements, "modifying at least one of the wires at a position intermediate the opposed ends of the wire such that a first transverse cross-section taken intermediate the opposed ends of the wire differs from a second transverse cross-section taken at one of the opposed ends of the wire."

The Examiner acknowledged that "Wirtz et al. do not teach a first transverse cross section of the grid element that is different from a second transverse cross section of the opposed grid element." However, the Examiner stated

Mistra et al. [sic] disclose the longitudinally and vertically extending elongated members 224, 226 having diamond and triangular cross-sectional areas, respectively. Also, the outer peripheral member (220,222) are preferably of generally hexagonal cross section. See Figure 21. Mistra et al. [sic] also conclude that polygonal cross-section of various members provides enhanced paste adherence to the grid over that achieved if circular cross-section members are used. See Column 18, Lines 55-61; Column 19, Lines 5-25; 49-53.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the cross-sectional area of the grid elements in the method of making a battery of Wirtz et al., because Mistra et al. [sic] teach the resulting paste adherence to the battery gird can be enhanced if difference cross-sections, such as hexagonal and diamond, are employed at the opposed ends of the grid element.

The subject matter recited in dependent Claims 39 and 53-58 would not have been obvious over Wirtz et al. in view of Mistra et al. under 35 U.S.C. § 103(a).

Mistra et al. relates to a “recombinant lead-acid cell and long-life battery and shows a “longitudinally extending elongated paste support members 224 and vertically extending elongated paste support members 226” (Column 19, lines 5-7). In a preferred embodiment, “longitudinally and vertically extending elongated paste support members 224, 226 respectively have diamond and triangular cross-sectional areas” (Column 19, lines 18-21).

However, the combination of Wirtz et al. in view of Mistra et al. would not result in the subject matter recited in independent Claim 39 or corresponding dependent Claims 53-58. Neither Wirtz et al. nor Mistra et al., alone or in any proper combination, disclose, teach or suggest the step of “modifying at least one of the wires at a position intermediate the opposed ends of the wire such that a first transverse cross-section taken intermediate the opposed ends of the wire differs from a second transverse cross-section of the wire taken at one of the opposed ends of the wire” as recited in Claim 39 (as amended).

Moreover, the suggestion to make the combination of Wirtz et al. and Mistra et al. has been taken from the Applicants’ own specification (using hindsight), which is improper. Furthermore, to transform the combination of Wirtz et al. and Mistra et al. to the “method of making a battery” recited in independent Claim 39 (as amended) would require still further modification, and such modification is taught only by the Applicants’ own disclosure.

The subject matter recited in dependent Claims 39 and 53-58, considered as a whole, would not have been obvious to a person having ordinary skill in the art. The rejection of Claims 39 and 53-58 over Wirtz et al. in view of Mistra et al. under 35 U.S.C. § 103(a) is

improper. Therefore, Claims 39 and 53-58 are patentable over Wirtz et al. in view of Misra et al.

Claim Rejections – 35 U.S.C. § 103(a) – Wirtz et al., Misra et al., and Kao et al.

In Section 7 of the Office Action, the Examiner rejected Claims 42-43 under 35 U.S.C. § 103(a) as being unpatentable over Wirtz et al. and Misra et al. and further in view of WO 99/27595 (“Kao et al.”).

Claims 42-43 depend from independent Claim 39. Accordingly, Claims 42 and 43 require every element of independent Claim 39 by virtue of their dependency thereon.

As described above, Wirtz et al. and Misra et al., alone or in any proper combination, do not disclose, teach or suggest the step of “modifying at least one of the wires at a position intermediate the opposed ends of the wire such that a first transverse cross-section taken intermediate the opposed ends of the wire differs from a second transverse cross-section of the wire taken at one of the opposed ends of the wire” as recited in independent Claim 39 (as amended).

Kao et al. relates to a “Stamped Battery Grid” and discloses a “grid” that is “made by stamping, or punching the grid from a continuous sheet of lead material” (Page 5, lines 4-5). The grids “are punched to shape while maintaining a continuous strip” and the resulting “grid shapes will likely result from a progressive punching operation” (Page 5, lines 7-9). Kao et al. does not, however, disclose, teach or suggest the step of “modifying at least one of the wires at a position intermediate the opposed ends of the wire such that a first transverse cross-section taken intermediate the opposed ends of the wire differs from a second transverse cross-section of the wire taken at one of the opposed ends of the wire” as recited in independent Claim 39 (as amended).

The subject matter recited in dependent Claims 42-43 would not have been obvious over Wirtz et al. and Misra et al. in view of Kao et al. under 35 U.S.C. § 103(a). Wirtz et al., Misra et al., and Kao et al., alone or in any proper combination, do not disclose, teach or suggest the “method of making a battery” as recited in independent Claim 39 (as amended). Furthermore, to transform the combination of Wirtz et al., Misra et al., and Kao et al., to the

“method of making a battery” recited in independent Claim 39 (as amended) would require still further modification, and such modification is taught only by the Applicants’ own disclosure.

The subject matter recited in dependent Claims 42-43, considered as a whole, would not have been obvious to a person having ordinary skill in the art. The rejection of Claims 42-43 over Wirtz et al. and Misra et al. in view of Kao et al. under 35 U.S.C. § 103(a) is improper. Therefore, Claims 42-43 are patentable over Wirtz et al. and Misra et al. in view of Kao et al.

New Claims

New Claims 127-139 relate to a “method of producing a battery” and are also allowable over the cited references (i.e., Wirtz et al., Misra et al. and Kao et al.). Independent Claim 127, and corresponding dependent Claims 128-139, recites a combination including, among other elements, “deforming at least a portion of a plurality of the wires, wherein each of the deformed wires has a cross-sectional shape at a point intermediate its opposed ends that differs from the cross-sectional shape of at least one of its opposed ends.” Wirtz et al., Misra et al. and Kao et al., alone or in proper combination, do not disclose, teach, or suggest the “method of producing a battery” recited in new independent Claim 127 and corresponding dependent Claims 128-139.

* * *

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. Claims 39, 41-52, 55-58, and 127-139 are now pending in this Application. The Applicants request favorable reconsideration and allowance of all pending Claims 39, 41-52, 55-58, and 127-139.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment,

to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

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